UNITED STATES PATENT AND TRADEMARK OFFICE

NOTICE OF ALLOWANCE AND FEE(S) DUE

23380   7590   03/09/2009

TUCKER ELLIS & WEST LLP
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CLEVELAND, OH 44115-1414

EXAMINER
PEACHES, RANDY

ART UNIT	PAPER NUMBER
2617	

DATE MAILED: 03/09/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,214	07/24/2003	Robert C. Meier	72255/30852	9642

TITLE OF INVENTION: UNIFORM POWER SAVE METHOD FOR 802.11E STATIONS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	06/09/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: <u>Mail</u>

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**Commissioner for Patents
P.O. Box 1450
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

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Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

_____ (Depositor's name)

_____ (Signature)

_____ (Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,214	07/24/2003	Robert C. Meier	72255/30852	9642

TITLE OF INVENTION: UNIFORM POWER SAVE METHOD FOR 802.11E STATIONS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	06/09/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
PEACHES, RANDY	2617	455-574000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE   (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☐ Issue Fee

☐ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)

☐ A check is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.   ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____   Date _____

Typed or printed name _____   Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,214	07/24/2003	Robert C. Meier	72255/30852	9642

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EXAMINER
PEACHES, RANDY

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DATE MAILED: 03/09/2009

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 916 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 916 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

	Application No.	Applicant(s)
Notice of Allowability	10/626,214	MEIER ET AL.
	Examiner	Art Unit	
	RANDY PEACHES	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Applicant's Interview dated 8/26/2008*.

2. ☒ The allowed claim(s) is/are *claims 1-132, renumber as claims 1-86*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☐ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance:

Regarding independent **claims 1, 13,25,65,77,84,96,119,120,124,126,127,129,130,131 and 132:**

The claimed invention, in regards to **claim 1**, is aimed at providing A method for an 802.11 station to save power, the station switching between a wakeup state and a doze state, the steps comprising:

- switching to a doze state;

- switching to a wakeup state;

- transmitting an uplink frame to an access point;

- receiving an acknowledgement for the uplink frame from the access point, with a flag set in the acknowledgement to indicate that the access point has frames buffered for the station;

- receiving a buffered downlink frame from the access point; and

- returning to the doze state only after a flag in the buffered downlink frame indicates that the access point does not have another buffered downlink frame for the station;

- ***sensing when the channel is idle;***

- ***sending at least one uplink frame interleaved in a bidirectional burst of uplink and downlink data frames following the initial channel, sense; and***

- ***sending at least one successive uplink frame without sensing when the channel is idle:***

  - wherein the power consumption in the doze state is less than the power consumption in the wakeup state.

Regarding *claim 13*, the Applicant claims an 802.11 station, comprising:

- means for switching to a power save state;

- means for switching to an operating state;

- means for transmitting an uplink frame to an access point;

- means for receiving an acknowledgement for the uplink frame from the access point where a flag in the acknowledgement indicates that the access point has one or more downlink frames buffered for the station;

- means for receiving a buffered downlink frame from the access point; and

- means for returning to the power save state after a flag in the buffered downlink frame indicating the access point does not have another buffered downlink frame for the 802.11 station:

- ***means for sensing when the channel is idle;***

- ***means for sending at least one uplink frame interleaved in a bidirectional burst of uplink and downlink data frames following the initial channel sense; and***

- ***means for sending at least one successive uplink frame without sensing when the channel is idle:***

- o wherein the power consumption in the power save state is less than the power consumption in the operating state.

Regarding **claim 25**, the Applicant claims a computer program product having a computer readable medium having computer program logic recorded thereon for operating an 802.11 wireless station, comprising:

- means for switching the station to a power save state;

- means for switching the station to an operating state;

- means for transmitting an uplink frame to an access point;

- means for receiving an acknowledgement for the uplink frame from the access point where a flag in the acknowledgement indicates that the access point has one or more downlink frames buffered for the station;

- means for receiving a buffered downlink frame from the access point;

- means for returning to the power save state after a flag in the buffered downlink frame indicating the access point does not have another buffered downlink frame for the 802.11 station;

- ***means for sensing when the channel is idle:***

- ***means for sending at least one uplink frame interleaved in a bidirectional burst following the initial channel sense; and***

- ***means for sending at least one successive uplink frame without sensing when the channel is idle:***

  - o wherein the power consumption in the power save state is less than the power consumption in the operating state.

Regarding **claim 65**, the Applicant claims a method for an access point to communicate with a wireless station, the steps comprising:

- receiving a notification from the station that the station is in an automatic power save delivery mode;

- buffering a downlink frame while the station is in a power save state;

- automatically sending a downlink frame to the station when the station is in the wakeup state;

- **negotiating a periodic wakeup schedule with the station, the schedule comprises a scheduled start time and a wakeup period, the wakeup period is defined as the time between each scheduled wakeup time and corresponds to a packet rate for an interactive voice communications session;**

- synchronizing wakeup times with the 802.11 Timer Synchronization Function; and

- sending a poll at the start of each scheduled wakeup time, the poll comprising a poll frame, the poll frame comprising a flag indicating if the access point has a downlink frame buffered for the station; and

- **sending a downlink frame containing a channel reservation for a channel, the channel reservation selected from the group consisting of an implicit channel reservation and an explicit channel reservation, wherein the channel reservation inhibits transmissions from other stations.**

Regarding **claim 77**, the Applicant claims an access point, comprising:

- means for receiving a notification from the station that the station is in an automatic power save delivery mode;

- means for buffering a downlink frame while the station is in a power save state;

- means for automatically sending a downlink frame to the station when the station is in the wakeup state;

- ***means for negotiating a periodic wakeup schedule with the station, the schedule comprises a scheduled start time and a wakeup period, the wakeup period is defined as the time between each scheduled wakeup time and corresponds to a packet rate for an interactive voice communications session;***

- means for synchronizing wakeup times with the 802.11 Timer Synchronization Function;

- means for sending a poll at the start of each scheduled wakeup time, the poll comprising a poll frame, the poll frame comprising a flag indicating if the access point has a downlink frame buffered for the station;

- means for determining an Internet Protocol address for the station;

- ***means for providing a proxy Address Resolution Protocol service for the station so that the station does not need to receive broadcast Address Resolution Protocol Request messages; and***

- ***means for indicating to client stations that the proxy Address Resolution Protocol service is being provided.***

Regarding *claim 84*, the Applicant claims a method of operating in an automatic power

save delivery mode by a wireless station, the steps comprising:

- receiving a notification from a power save 802.11 station that the station is

  operating in an automatic power save delivery mode,

- ***negotiating a periodic wakeup schedule between the station and an access***

  point, the schedule comprises a scheduled start time and a wakeup period,

  the wakeup period is defined as the time between each scheduled wakeup

  time and corresponds to a packet rate for an interactive voice

  communications session;

- synchronizing wakeup times with the 802.11 Timer Synchronization Function;

- waiting for a poll from the access point at the start of each scheduled wakeup

  time, the poll comprising a poll frame, the poll frame comprising a flag indicating

  if the access point has a downlink frame buffered for the station; and

- ***setting a flag in an uplink frame sent by the station to the access point to***

  indicate the station will stay in the awake state to send at least one

  successive uplink frame to the access point, the uplink frame sent in

  response to the poll.

Regarding *claim 96*, the Applicant claims a computer program product having a

computer readable medium having computer program logic recorded thereon for

performing method of operating in an automatic power save delivery mode by a wireless

station, the steps comprising:

- means for receiving a notification from a power save 802.11 station that the station is operating in an automatic power save delivery mode,

- ***means for negotiating a periodic wakeup schedule between the station and an access point, the schedule comprises a scheduled start time and a wakeup period, the wakeup period is defined as the time between each scheduled wakeup time and corresponds to a packet rate for an interactive voice communications session;***

- means for synchronizing wakeup times with the 802.11 Timer Synchronization Function;

- means for waiting for a poll from the access point at the start of each scheduled wakeup time, the poll comprising a poll frame, the poll frame comprising a flag indicating if the access point has a downlink frame buffered for the station; and

- ***means for receiving a downlink frame containing a channel reservation for a channel, the channel reservation selected from the group consisting of an implicit channel reservation and an explicit channel reservation, wherein the channel reservation inhibits transmissions from. other stations.***

Regarding ***claim 119,*** the Applicant claims a method, the steps comprising:

- notifying an access point by a power save 802.11 station that the station is operating in an automatic power save delivery mode,

- automatically sending a downlink frame to the station when the access point determines the station is in an awake state;

- buffering a downlink frame by the access point when the access point determines the station is in a power save state;

- ***negotiating a periodic wakeup schedule between the station and an access point, the schedule comprises a scheduled start time and a wakeup period, the wakeup period is defined as the time between each scheduled wakeup time and corresponds to a packet rate for an interactive voice communications session;***

- synchronizing wakeup times with the 802.11 Timer Synchronization Function; and

- sending a poll by the access point at the start of each scheduled wakeup time, the poll comprising a poll frame, the poll frame comprising a flag indicating if the access point has a downlink frame buffered for the station;

- immediately queuing voice samples for transmission; and

- ***coalescing any available voice samples into a data communications packet before a scheduled wakeup time;***

- ***wherein the station has a voice sampling rate that is faster than a wakeup period.***

Regarding ***claim 120,*** the Applicant claims a method for an access point to communicate with a wireless station, the steps comprising:

- receiving a notification from the station that the station is in an automatic power save delivery mode;

- buffering a downlink frame while the station is in a power save state;

- automatically sending a downlink frame to the station when the station is in the wakeup state;

- ***negotiating a periodic wakeup schedule with the station, the schedule comprises a scheduled start time and a wakeup period, the wakeup period is defined as the time between each scheduled wakeup time and corresponds to a packet rate for an interactive voice communications session;***

- synchronizing wakeup times with the 802.11 Timer Synchronization Function;

- sending a poll at the start of each scheduled wakeup time, the poll comprising a poll frame, the poll frame comprising a flag indicating if the access point has a downlink frame buffered for the station;

- determining an Internet Protocol address for the station;

- providing a proxy Address Resolution Protocol service for the station so that the station does not need to receive broadcast Address Resolution Protocol Request messages; and

- indicating to the station that the proxy Address Resolution Protocol service is being provided.

Regarding ***claim 124,*** the Applicant claims a method of operating in an automatic power save delivery mode by a wireless station, the steps comprising:

- receiving a notification from a power save 802.11 station that the station is operating in an automatic power save delivery mode,

- *negotiating a periodic wakeup schedule between the station and an access point, the schedule comprises a scheduled start time and a wakeup period, the wakeup period is defined as the time between each scheduled wakeup time and corresponds to a packet rate for an interactive voice communications session;*

- synchronizing wakeup times with the 802.11 Timer Synchronization Function;

- waiting for a poll from the access point at the start of each scheduled wakeup time, the poll comprising a poll frame, the poll frame comprising a flag indicating if the access point has a downlink frame buffered for the station;

- receiving the poll; and

- *sending an uplink frame interleaved in a bidirectional burst, wherein the frame is sent after the poll and the channel is only sensed before the initial poll.*

Regarding *claim 126,* the Applicant claims a method of operating in an automatic power save delivery mode by a wireless station, the steps comprising:

- receiving a notification from a power save 802.11 station that the station is operating in an automatic power save delivery mode,

- *negotiating a periodic wakeup schedule between the station and an access point, the schedule comprises a scheduled start time and a wakeup period, the wakeup period is defined as the time between each scheduled wakeup time and corresponds to a packet rate for an interactive voice communications session;*

- synchronizing wakeup times with the 802.11 Timer Synchronization Function;

- waiting for a poll from the access point at the start of each scheduled wakeup

  time, the poll comprising a poll frame, the poll frame comprising a flag indicating

  if the access point has a downlink frame buffered for the station;

- immediately queuing voice samples for transmission;

- ***coalescing any available voice samples into a data communications packet***

  before a scheduled wakeup time; and

- sending the data communications packet after the scheduled wakeup time;

- ***wherein the station has a voice sampling rate that is faster than a wakeup***

  period.

Regarding ***claim 127,*** the Applicant claims a method of operating in an automatic power

save delivery mode by a wireless station, the steps comprising:

- receiving a notification from a power save 802.11 station that the station is

  operating in an automatic power save delivery mode,

- ***negotiating a periodic wakeup schedule between the station and an access***

  point, the schedule comprises a scheduled start time and a wakeup period,

  the wakeup period is defined as the time between each scheduled wakeup

  time and corresponds to a packet rate for an interactive voice

  communications session;

- synchronizing wakeup times with the 802.11 Timer Synchronization Function;

  and

- waiting for a poll from the access point at the start of each scheduled wakeup time, the poll comprising a poll frame, the poll frame comprising a flag indicating if the access point has a downlink frame buffered for the station; and

- registering an Internet Protocol address for the station with the access point.

Regarding **claim 129,** the Applicant claims a computer program product having a computer readable medium having computer program logic recorded thereon for performing method of operating in an automatic power save delivery mode by a wireless station, the steps comprising:

- means for receiving a notification from a power save 802.11 station that the station is operating in an automatic power save delivery mode,

- ***means for negotiating a periodic wakeup schedule between the station and an access point, the schedule comprises a scheduled start time and a wakeup period, the wakeup period is defined as the time between each scheduled wakeup time and corresponds to a packet rate for an interactive voice communications session;***

- means for synchronizing wakeup times with the 802.11 Timer Synchronization Function;

- means for waiting for a poll from the access point at the start of each scheduled wakeup time, the poll comprising a poll frame, the poll frame comprising a flag indicating if the access point has a downlink frame buffered for the station; and

- ***means for the station sending a frame in response to the poll sent by the access point without first sensing the channel to determine if the channel is idle.***

Regarding *claim 130,* the Applicant claims a computer program product having a computer readable medium having computer program logic recorded thereon for performing method of operating in an automatic power save delivery mode by a wireless station, the steps comprising:

- means for receiving a notification from a power save 802.11 station that the station is operating in an automatic power save delivery mode,
- ***means for negotiating a periodic wakeup schedule between the station and an access point, the schedule comprises a scheduled start time and a wakeup period, the wakeup period is defined as the time between each scheduled wakeup time and corresponds to a packet rate for an interactive voice communications session;***
- means for synchronizing wakeup times with the 802.11 Timer Synchronization Function;
- means for waiting for a poll from the access point at the start of each scheduled wakeup time, the poll comprising a poll frame, the poll frame comprising a flag indicating if the access point has a downlink frame buffered for the station; means for receiving the poll; and
- ***means for sending an uplink frame interleaved in a bidirectional burst of uplink and downlink data frames,***

- ***wherein the frame is sent after the poll and the channel is only sensed before the initial poll.***

Regarding **claim 131,** the Applicant claims a computer program product having a computer readable medium having computer program logic recorded thereon for performing method of operating in an automatic power save delivery mode by a wireless station, the steps comprising:

- means for receiving a notification from a power save 802.11 station that the station is operating in an automatic power save delivery mode,

- ***means for negotiating a periodic wakeup schedule between the station and an access point, the schedule comprises a scheduled start time and a wakeup period, the wakeup period is defined as the time between each scheduled wakeup time and corresponds to a packet rate for an interactive voice communications session;***

- means for synchronizing wakeup times with the 802.11 Timer Synchronization Function;

- means for waiting for a poll from the access point at the start of each scheduled wakeup time, the poll comprising a poll frame, the poll frame comprising a flag indicating if the access point has a downlink frame buffered for the station;

- means for immediately queuing voice samples for transmission;

- ***means for coalescing any available voice samples into a data communications packet before a scheduled wakeup time; and***

- means for sending the data communications packet after the scheduled wakeup time;

- *wherein the station has a voice sampling rate that is faster than a wakeup period.*

Regarding *claim 132,* the Applicant claims a computer program product having a computer readable medium having computer program logic recorded thereon for performing method of operating in an automatic power save delivery mode by a wireless station, the steps comprising:

- means for receiving a notification from a power save 802.11 station that the station is operating in an automatic power save delivery mode,

- *means for negotiating a periodic wakeup schedule between the station and an access point, the schedule comprises a scheduled start time and a wakeup period, the wakeup period is defined as the time between each scheduled wakeup time and corresponds to a packet rate for an interactive voice communications session;*

- means for synchronizing wakeup times with the 802.11 Timer Synchronization Function;

- means for waiting for a poll from the access point at the start of each scheduled wakeup time, the poll comprising a poll frame, the poll frame comprising a flag indicating if the access point has a downlink frame buffered for the station; and

- means for registering an Internet Protocol address for the station with the access point.

The closest prior art relevant to the claimed invention:

__Lui - U.S. Patent Publication Number 20050009578__ – Optimal Power Saving Scheduler for 802.11e APSD

Lui discloses a system discloses a flexible way to address power saving and non-power saving data by utilizing a system having an access point with a priority queue and an algorithm for calculating the total receiving power consumption of downlink data to one or more stations. A station may indicate its desire to enter the corresponding mode by sending an APSD (automatic power delivery system) element to the access point via a frame. The APSD expresses the wake-up time period of the station. The station will periodically awaken according to the pre-specified beacon interval, via the APSD. Upon reception of the said APSD, the access point will buffer the stations traffic only during the beacon interval when the station is awake. If buffered traffic is pending for the station, a traffic indication map (TIM) will detail which station has buffered information and that station will remain awake until the AP sends out all of the data.

Although Lui is considered to constitute to the state of the claimed invention; however, in contrast with comparable differences, the instant Application is considered novel over the because the instant application claims a power saving station that alternates between the wake-up state and doze state. The power-save (PS) station in an APSD mode periodically wakes up to send an uplink frame to an access point (AP), wherein the AP sets a flag for an uplink frame to indicate that it has a downlink frame buffered for the PS station. The PS station stays awake to receive the downlink frame. The AP sets a flag in a transmitted frame to indicate when it does not have a buffered

downlink frame for the PS station. The PS station then returns to a doze state after it receives the indication from the AP, until it has more uplink frames queued for transmission. In addition the PS station negotiates a periodic wakeup schedule with its AP, the wakeup schedule comprises a schedule start time and a wakeup period, which is defined as the time between each scheduled wakeup time. The wakeup period corresponds to the packet rate for an interactive communications session. The AP sends a frame that contains a poll at the start of each scheduled wakeup time, a flag in the poll frame indicates if the AP has a downlink frame for the station. The downlink frame contains a channel reservation which temporarily holds transmissions from other stations; therefore, the PS station sends a frame in response to the poll without first sensing the channel to determine if it is idle.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RANDY PEACHES whose telephone number is (571) 272-7914. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Appiah can be reached on (571) 272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Randy Peaches/
Examiner, Art Unit 2617

/Charles N. Appiah/
Supervisory Patent Examiner, Art Unit 2617